Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 90	)	WT Docket No. 07-100
of the Commission's Rules	)	

Comments of Tropos Networks

Tropos Networks (Tropos) submits these comments in response to the Commission's Notice of Proposed Rulemaking (*NPRM*)[1] proposing miscellaneous rule changes to Part 90 of the Commission's Rules. Tropos addresses the section of the *NPRM* proposing changes to the rules governing the 4.9 GHz band.

Tropos Networks

Tropos Networks, headquartered in Sunnyvale, California, provides wireless Wi-Fi technology that delivers broadband access using unlicensed spectrum. Tropos is the market leader in delivering metro-scale wireless mesh network systems. The company's systems have been selected to unwire more major league cities than all competitors combined and are installed in 30 countries. The patented Tropos MetroMesh™ architecture delivers scalability, high capacity at low cost and quality user experience demanded by carriers, municipalities and network users. Tropos' expertise includes high-performance mesh software development, mesh RF engineering, metro-scale network planning, deployment and system optimization.

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[1] In the Matter of Amendment of Part 90 of the Commission's Rules, *Notice of Proposed Rulemaking*, WT Docket No. 07-100, FCC 07-85 (May 14, 2007).

In over 500 deployments, Tropos technology is providing wireless broadband over large geographic areas. The MetroMesh architecture allows a network to be installed at substantial savings over legacy systems because it eliminates costly backhaul and proprietary client devices. No large towers need to be constructed; no streets are excavated. The system's capacity embraces advanced applications delivering voice, video and large data files. Portable wireless devices, now mass produced to operate in a Wi-Fi environment, also reduce cost and expand consumer choice.

With its partners, Tropos has emerged as a facilities-based broadband provider in a market that lacks connectivity and competition. Tropos is the technology provider to EarthLink in its Philadelphia and Anaheim projects, and in the Google/EarthLink San Francisco project. The fully deployed Corpus Christi, Texas network covers more than 100 square miles and reaches 90% of the city's 277,000 residents; it is the world's largest multipurpose mesh network.

Tropos' new multi-mode 4.9 GHz/Wi-Fi MetroMesh fixed and mobile routers enable public safety agencies to deliver the range of citywide IP-based data, video and voice applications in unlicensed spectrum. The 4.9 GHz equipment is built on Tropos technology deployed today for a range of public safety services including fixed and in-vehicle video surveillance, centralized database access, and the transmission of field reports. The Tropos 4.9 GHz MetroMesh routers are outfitted with both 4.9 GHz and 802.11b/g radios and use Tropos' Spectrum and Application Based Routing Engine (SABRE) capability.

SABRE is embedded software that enables intelligent integration of parallel network operations across multiple frequency bands and radio types. It allows public safety agencies to enhance significantly the reliability and capacity of their networks. Agencies may access networks using either 4.9 GHz or 2.4 GHz devices, affording broad flexibility to connect using more widely available Wi-Fi enabled devices such as laptops and PDAs, in addition to specialized 4.9 GHz devices.

The *NPRM's* Request for Comments Addressing the 4.9 GHz Band

The Commission seeks comment on M/A-COM, Inc.'s (M/A COM) request that the 4.9 GHz rules be amended to state that licensees have authority to operate point-to-point and point-to-multipoint fixed links using directional antennas on a primary basis. As the Commission limited permanent fixed links for traditional backhaul purposes to a secondary basis, M/A-COM states that the rules are ambiguous regarding fixed links that operate as part of an integrated network with hot spots and mobile links. M/A-COM recommends that the Part 90 be amended to grant primary allocation status to point-to-point and point-to-multipoint fixed links that are part of a 4.9 GHz public safety network.[2] M/A COM also recommends that the measurement procedures for the 4.9 GHz band equipment reflect that used by the Commission elsewhere in its rules.

The Commission's Rules Should Explicitly Provide Primary Status For Metro Mesh Public Safety Systems

The Commission's decision adopting rules for the 4.9 GHz band permits broadband mobile services to provide high speed file transfers from hot spots to mobile

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[2] *See Petition for Clarification or, in the Alternative, Petition for Rulemaking of M/A-COM, Inc.* (filed July 22, 2005) (Petition); *see also Amended Petition for Clarification or, in the Alternative, Petition for Rulemaking of M/A-COM, Inc.* (filed Aug. 23, 2005) (Amended Petition).

units on a primary basis. It was explicit in seeking to promote the innovation associated with metro mesh networks and other technologies and applications built around the 802.11 standard. The Commission limited permanent fixed operations dedicated to traditional backhaul to a secondary basis so these operations would not exhaust the 4.9 GHz band capacity. [3]

Tropos agrees with M/A-COM that the Commission's rules should indicate clearly that fixed links using directional antennas, operating as part of an integrated network with hot spots and mobile links, are authorized on a primary basis. Secondary status should attach only to permanent fixed links used for traditional backhaul operations.

To confine fixed 4.9 GHz links, other than backhaul, to secondary status defeats the purposes and efficiencies for which the band was established. The mesh network technology of Tropos and its competitors entails transmitting information by moving it from one access point to another to its destination. The technology relies on a series of routers, each the size of a breadbox, which select the most effective communications route. The enormous cost efficiency, noted above, when compared to legacy networks, accentuates the speed, capacity and security of the network. To remove these crucial access points from the protection of primary status relegates and confines the 4.9 GHz band to limited use.

The 4.9 GHz band can expand innovation, choice and lower cost to the public safety sector. Yet the access points are critical. The routing intelligence at these points

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[3] *See* 4.9 GHz Band Transferred from Federal Government Use, *Memorandum Opinion and Order and Third Report and Order*, 18 FCC Rcd 9152 (2003) (*4.9 GHz Third Report and Order*).

forms an economical self-configuring and self healing wireless broadband data network that forwards client data through a mesh along the highest throughput path to its destination. Eliminating the need for per node wiring combined with the dynamic self-organizing nodes and lack of significant infrastructure, enables true broadband. Mission-critical broadband applications in mobile public safety environments such as mobile database access, video surveillance, and GIS inquiries as well as Internet access, are a reality.

To restrict the network access points vital to a system's service quality and efficiency to secondary status threatens the very benefits the 4.9 GHz rules were intended to promote. Bringing the innovations evolving from the 802.11 standard to public safety will be lost if the core of the network is diminished. Ensuring that backhaul operations do not consume 4.9 GHz band capacity does not require eliminating the source of enormous cost and efficiency. The permanent fixed points that are integral to a 4.9 GHz public safety system need primary status. Tropos urges the Commission to adopt MA/COM's proposed clarification.

M/A-COM also proposes to amend Section 90.1215 to reflect the revised measurement procedures adopted by the Commission for devices that use digital modulation techniques and are regulated by Part 15 of the Rules.[4] Specifically, the Commission modified the Part 15 rules to permit the determination of a device's output power by using average power measurements in addition to the existing peak output power measurement method.[5] The *NPRM* agrees with M/A-COM that measurement

[4] *See* Modification of Parts 2 and 15 of the Commission's Rules for unlicensed devices and equipment approval, *Report and Order*, ET Docket No. 03-201, 19 FCC Rcd 13539 (2004).

[5] *Id.* at 13547 ¶ 34.

procedures should remain consistent between the Part 15 rules and the 4.9 GHz rules. Tropos recommends that the Commission adopt the proposed changes. Consistent measurement standards reduce burdens and promote comprehension of the policies underlying the rules.

Conclusion

Tropos Networks urges the Commission to adopt the proposals that would clarify that MetroMesh fixed access points in the 4.9 GHz band are entitled to primary status and that the measurement standards in the band be made consistent with Part 15 of the Commission's rules.

Respectfully submitted,

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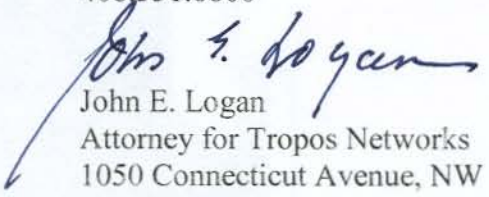

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